CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 90-041

SITE CLEANUP REQUIREMENTS FOR:
IMO Industries, Inc.
550 85TH STREET
OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the "Board") finds that:

1. General: IMO Industries, Inc. (hereinafter called the discharger) owns a 60.56 acre site at 55th Avenue, Oakland (the site). The site is partitioned into two parcels: the southern, or Enterprise parcel, and the northern or Railroad Avenue parcel. The Enterprise site was used by IMO Delaval as the location of their Enterprise Engine Division, in the production of large scale reciprocating engines for electrical power generation and maritime applications. The parcel was used from the early 1960's through 1987.

   The Railroad Avenue parcel is the former site of a mailable iron and brass foundry/wheel manufacturing plant. Manufacturing operations on the Railroad Avenue parcel ceased in the late 1950's and the buildings were demolished in 1965 or 1966. No manufacturing operations are taking place on either parcel and the entire property is currently awaiting sale and redevelopment.

2. Diesel fuel, Gasoline, organic solvents, paints, binding agents and other organic chemicals and plating solutions were stored and used in a variety of manufacturing processes. Hazardous materials were stored in 55 gallon drums, in above-ground tanks and in one underground tank.

3. Investigations: The discharger has been investigating hydrogeologic conditions as well as the lateral and vertical extent of on-site soil and groundwater pollution in accordance with plans accepted by the Regional Board staff. The discharger has been cooperating with staff and, commencing in May of 1988, has prepared numerous reports on the soil and hydrogeologic conditions at the site.

4. Investigations of the site have shown the presence of soil and groundwater pollution. This pollution is believed to have been largely the result of a documented spill from a vapor decreasing tank as well as from routine spills, leaking

underground tanks, breaks in underground pipelines, and leaking equipment. Investigations undertaken by the discharger have shown soils to contain various levels of: 1,1,1-TCA, 1,1,2-TCA, 1,1-DCA, and 1,1-DCE. Soils at the fuel tank area were found to contain benzene, toluene, and xylene. Soils at other locations on the facility were found to contain 1,2,4 trichlorobenzene, PCBs and various Polynuclear Aromatic Hydrocarbons (PNA or PAH), acetone, xylenes and petroleum hydrocarbon constituents of diesel, gasoline and lube oil. Groundwater investigations have defined a plume of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCE in shallow zone (0-35 Feet) groundwater. The investigations have substantially defined the shallow zone groundwater pollution on-site. One on-site wells have indicated low levels of PCE, TCE, CHCL3 and CFC-113 which are thought to have originated from off-site source(s). Investigation of a deeper (50-70 feet) water bearing zone has not shown the presence of any pollutants.

5. **Compounds found in Soil Gas:** A reconnaissance soil gas survey was performed on the site. A total of 34 soil gas samples were collected and analyzed. In three areas there were found to be elevated levels of gaseous solvents in the soil. 1,1,1-TCA, 1,1-DCA and 1,1-DCE were detected in soil gas samples collected in the vicinity of the known vapor degreaser release. 1,1-DCE, 1,1-DCA, 1,1,1-TCA, TCE and PCE were detected in elevated concentrations collected on and off the site in the southern portion of the site along Edes Avenue. 1,1-DCE and 1,1-DCA were detected off the site to the west of the northern, or Railroad Avenue parcel, along 85 Avenue.

6. **Compounds Found in Wells On-Site:** 1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCE, 1,1,2-TCA, PCE, TCE, CHCl3, CFC-113 have been found in on-site monitoring wells. Nineteen wells were placed into the upper zones on-site. Two wells have been installed into the deeper water bearing zone on-site.

7. **Chemicals found in Wells Off-Site:** 1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCE, and 1,1,2-TCA have been found in off-site monitoring wells and exploratory borings. The wells were installed to determine the lateral and vertical extent of groundwater pollution. Eleven monitoring wells and eighteen exploratory borings were installed into shallow groundwater zone. Two wells were installed into the deeper water bearing zone.

8. **Geology:** The site is located within the East Bay Plain, an area that includes alluvial and fluvial deposits. The upper unconsolidated unit in the area of the site is generally between 300 and 1000 feet deep and overlies undivided bedrock. Groundwater generally runs east to west, from the mountains to the Bay. The subsurface at the site has been characterized as consisting of fill material, fine and course-grained

sediments in the upper zones (0-35 feet) and fine-grained sediments with interbedded sands and gravel in the lower zones (50-70 feet). Sand and gravel channels in the upper zone apparently run in a west-northwest direction, thereby providing a possible conduit for movement of polluted groundwater.

9. **Waters of Concern**: The aquifer at the site is a potential source of drinking water in accordance with State Water Resources Control Board resolution 88-63. Analysis of shallow zone water beneath the site showed a total dissolved solids concentration of 530 mg/l and extraction wells on-site have exhibited yields far in excess of 200 gallons per day; therefore, this aquifer is a potential source of drinking water. San Leandro Bay is down gradient of the site approximately one-half mile from San Leandro Bay, which is contiguous with the San Francisco Bay.

10. **Remedial Measures**: The discharger has excavated 40,000 cubic yards of soil for aeration and disposal. These actions appear to have been a complete and effective remediation of known sources of soil contamination which had potential for release of constituents to groundwater. The discharger voluntarily implemented groundwater remedial action in the form of a pilot groundwater extraction and treatment system. The treatment system was designed primarily to remove chlorinated hydrocarbons in groundwater from the known on-site source at the vapor degreaser area. Two extraction wells have been installed into the upper water bearing zone on-site. Water pumped from these two wells are treated by air stripping and the water is then discharged into Elmhurst creek under a separate NPDES permit.

11. NPDES DISCHARGE: The Discharger was issued NPDES permit No. CA0029521 on May 19, 1989. The discharger is currently discharging 220,000 gallons per day of treated groundwater to the San Francisco Bay via Elmhurst Creek.

12. BASIN PLAN: The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) dated December 1986. The Basin Plan contains water quality objectives and beneficial uses for San Francisco Bay and contiguous surface and ground waters.

13. BENEFICIAL USES: The existing and/or potential beneficial uses of the groundwater at and the vicinity of the site are as follows:

    a. Industrial Process and service supply
    b. Agricultural and/or landscape maintenance
    c. Drinking Water

The existing and/or potential beneficial uses of surface waters in the vicinity of the site include:

a. Contact and non-contact water recreation
b. Wildlife habitat
c. Warm and cold fresh water habitat
d. Fish migration and spawning
e. Preservation of rare and endangered species
f. Industrial process and service supply
g. Navigation
h. Shell fishing
i. Commercial and sport fishing

14. **CEQA EXEMPTION**: This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

15. **NOTIFICATION**: The Board has notified the Discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

16. **COMMENTS:** The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that IMO Industries, Inc. shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will significantly degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.

2. Significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup, that will cause significant adverse migration of pollutants, are prohibited.

B. SPECIFICATIONS

1. The treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The Discharger shall ongoing conduct monitoring activities reasonably necessary to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of plume migration, additional plume characterization may be required.

3. Any wells and/or soil borings penetrating the upper and lower zones shall be constructed to minimize the potential for pollutant migration between the upper and the lower zones.

4. Any wells installed by the Discharger, and any well identified as potential conduits for the migration of pollutants shall be properly abandoned. A detailed work plan shall be submitted for review and approval, which describes the proposed methods of abandonment for each well identified.

C. PROVISIONS

1. The Discharger shall review their existing groundwater monitoring program and shall propose within 45 days of the adoption of this Order, modifications as necessary to comply with this Order. This monitoring program shall be acceptable to the Board's Executive Officer. The proposed monitoring program shall include, but need not be limited to, the identification/location of sample wells, the frequency of water level and water quality sampling, and the identification of methods chosen for sample analysis.

2. The discharger shall comply with Prohibitions A.1., A.2. and A.3., and Specifications B.1, B.2, B.3. and B.4. by completing the tasks outlined below in accordance with the following time schedule:

COMPLETION DATE/TASK:

a. COMPLETION DATE: April 1, 1990

TASK: SURVEY OF GROUNDWATER USE. Submit a technical report acceptable to the Executive Officer of groundwater use in the area affected by, or groundwater threatened by, pollution originating or emanating from the site. The State Water Resources Control Board Resolution 88-63, "Sources of Drinking Water" shall be considered in this analysis.

b. COMPLETION DATE: April 1, 1990

TASK: CONDUIT STUDY. Submit a study acceptable to the Executive Officer of potential conduits between upper and lower zones. The study is to address the location and nature of any potential conduits located on and off-site. A plan and time schedule for well closing shall be included with this report.

c. COMPLETION DATE: May 1, 1990

TASK: CHARACTERIZATION OF OFF-SITE POLLUTION, AND HYDROGEOLOGY. Submit an investigation acceptable to the Executive Officer of groundwater pollution movement off-site. The report must fully define the extent of off-site contamination and be based upon all data the discharger has gathered about the site to date. The report should, at a minimum, include drillers logs for test borings and monitoring wells, updated water table and potentiometric surface maps for all affected water bearing zones, any updated cross-sectional geologic maps describing the hydrogeological setting, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells. The report should also include identification of adjacent facilities and structures, sampling data from any soil gas monitoring data, and laboratory results from sampling of off-site monitoring wells.

d.

COMPLETION DATE: May 1, 1990

TASK: ASSESSMENT OF THE INTERIM GROUNDWATER EXTRACTION AND TREATMENT SYSTEM. Submit a report acceptable to the Executive Officer that assesses the effectiveness and performance of the groundwater extraction and treatment system (Remedial Action) currently in operation. The report shall discuss implementation of any and all groundwater remedial measures taken to date and include performance data from system trial runs and start-up.

e. COMPLETION DATE: May 1, 1990

TASK: DEEP ZONE CHARACTERIZATION STUDY. Submit a study acceptable to the Executive Officer that characterizes the water quality in the deeper water bearing zone (50-70 feet).

f. COMPLETION DATE: June 15, 1990

TASK: CLEAN-UP PLAN/FEASIBILITY STUDY

Submit a Clean-up Plan/Feasibility Study acceptable to the Executive Officer which will include the following:

(i) modifications to groundwater extraction and treatment system as necessary to remediate the waste plume in the groundwater, to the extent technically and economically feasible.

(ii) If applicable, a discussion of additional investigations and remedial actions.

(iii) A plan of projected clean-up system operation and maintenance for a five year period commencing **June 1, 1990.**

3. On a quarterly basis, the Discharger shall submit a technical report one month following the end of each quarter, commencing with a report for the quarter ending June 15, 1990 and due July 15, 1990. These quarterly technical reports shall include, but need not be limited to, the results of updated groundwater quality sampling of on-site and off-site wells, updated water table and potentiometric surface maps for all affected water bearing zones, any updated cross-sectional geologic maps describing the hydrogeological setting, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures (including well locations at adjacent sites).

4. On an annual basis, for the previous calendar year, by the end of the second month following the calendar year, the Discharger shall submit an annual technical report acceptable to the Executive Officer which shall document and evaluate the progress of remedial actions. This report shall contain, but not be limited to, information on the number of gallons of groundwater pumped and treated, where the waters were discharged, changes in groundwater quality, changes in the monitoring network, problems encountered in the past year with implemented and/or proposed solutions, and projected cleanup anticipated for the coming year. The discharger may petition the Executive Officer for approval to cease groundwater remediation activities when it can be shown that concentrations of pollutants have been reduced to restore water to the highest beneficial use or that pollutants have been remediated to the degree technically feasible.

5. All hydrogeological reports, documents, plans, and specifications, shall be certified by one of the following: a registered geologist, registered pursuant to Section 7850 of the Business and Professions Code; a certified engineering geologist, certified pursuant to Section 7842 of the Business and Professions Code; or a civil engineer registered pursuant to Section 6762 of the Business and Professions Code, who has at least five years experience in groundwater hydrology.

6. If the Discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order for reasons beyond its reasonable control (permitting etc.), the Discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order extending the time for compliance for a reasonable period.

7. All samples shall be analyzed by State certified laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.

9. The Discharger shall maintain in good working order, and operate, as efficiently as reasonably possible, any facility or control system installed to achieve compliance with the requirements of this Order.

10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

    a. Alameda County Flood Control and Conservation District
    b. Alameda County Health Department, Hazardous Materials Division
    c. State Department of Health Services, Toxic Substances Control Program

11. The Discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

    a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

c. Inspection of any monitoring equipment or methodology implemented in response to this Order.

d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.

12. The Discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.

13. If any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any waters of the State, the Discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of the incident, cause of spill, Spill Prevention, Control, and Countermeasures Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

14. The Board will review this Order periodically and revise the requirements as necessary to effectuate the intent of this Order in a prompt and reasonable manner.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 23, 1990.

Steven R. Ritchie
Executive Officer